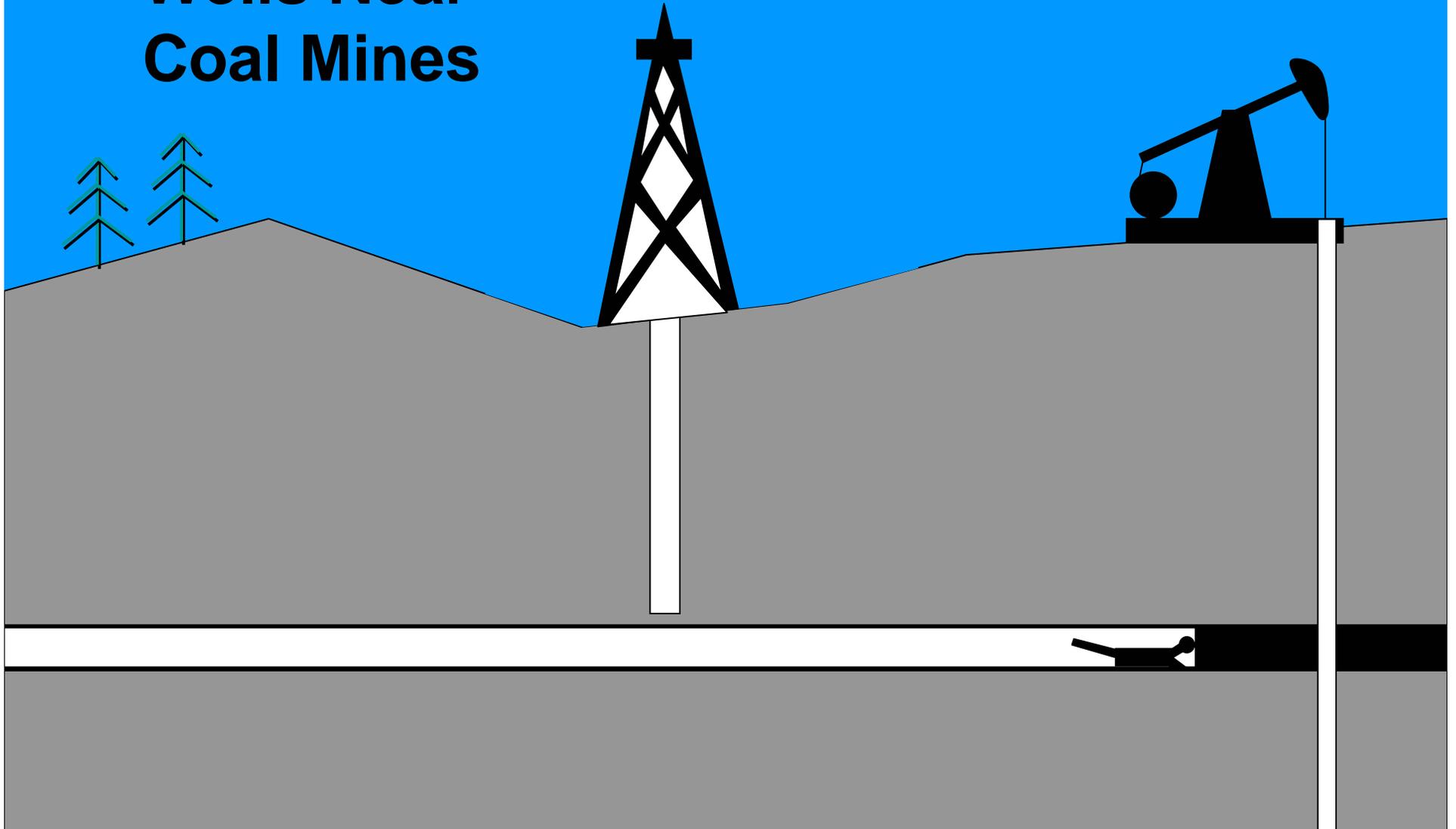


Oil, Gas and Coalbed Methane Wells Near Coal Mines

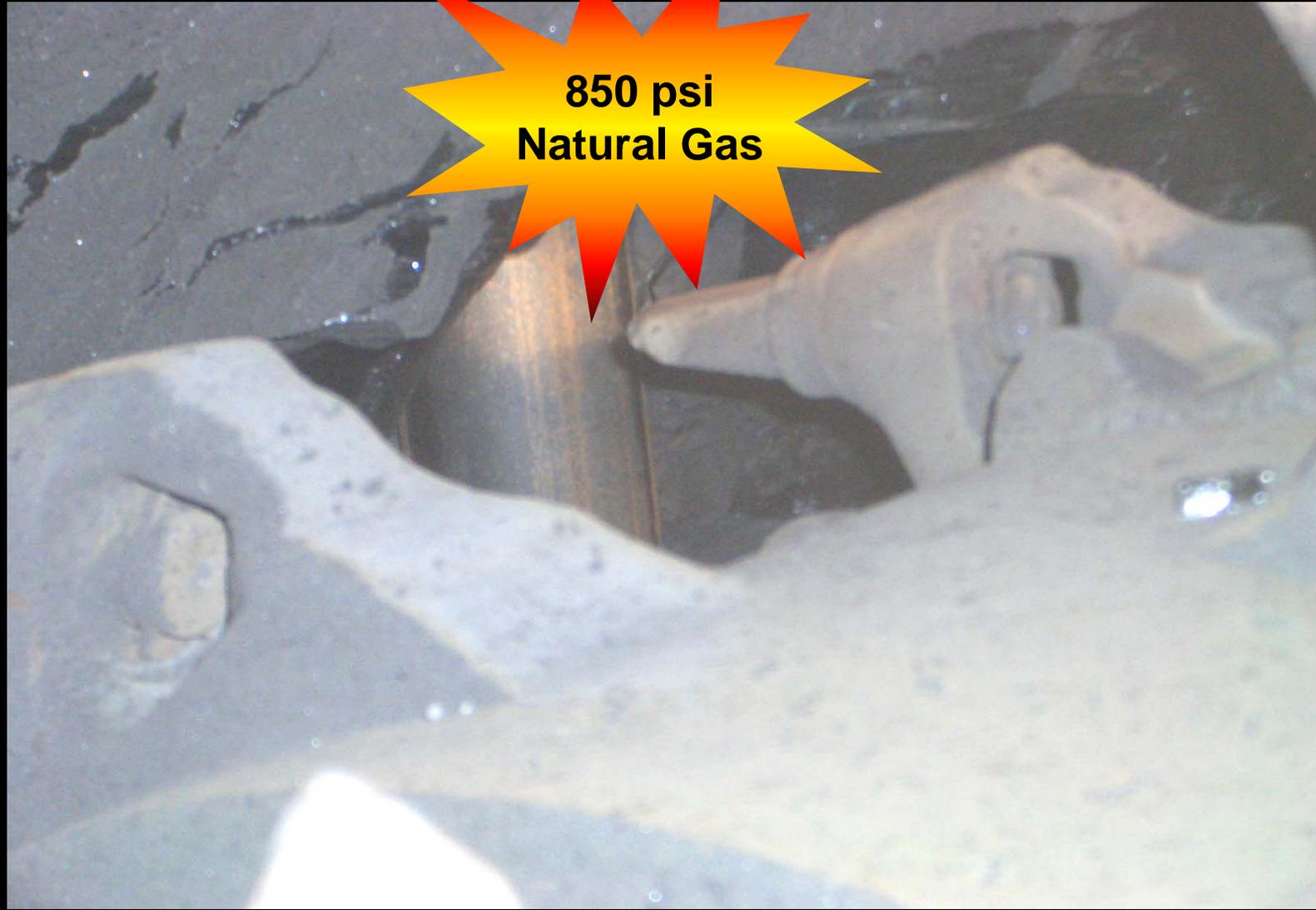


Oil and Gas Well Hazards

- **Inundation**
 - Gas
 - Oil
 - Water
- **Ignition source**
 - Mine into casing
 - Drill into active mine
- **Underground piping**
 - Leaks

Inches From Disaster

**850 psi
Natural Gas**



Jurisdictional Problem

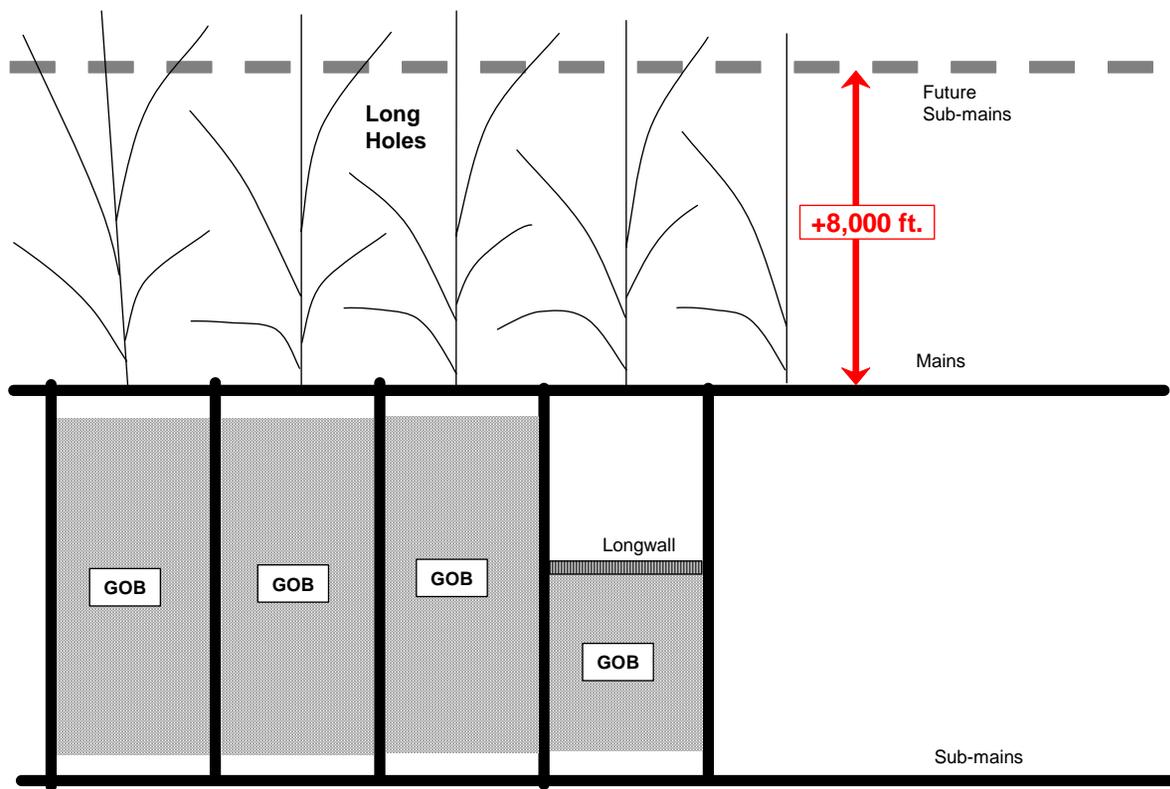
- **Oil and gas wells are regulated by states**
- **MSHA only has jurisdiction over mines**
 - **Only when a coal mine is near an oil or gas well is MSHA able to take enforcement actions**
 - **Most oil and gas drillers and coal mines have been cooperative in dealing with this potential issue**

Oil and Gas Wells

- 300 ft. diameter barrier
- Petition for modification
 - BuMines research 1970's
 - Redrill, replug, prior to mining intersection
- Similar to many state regulations

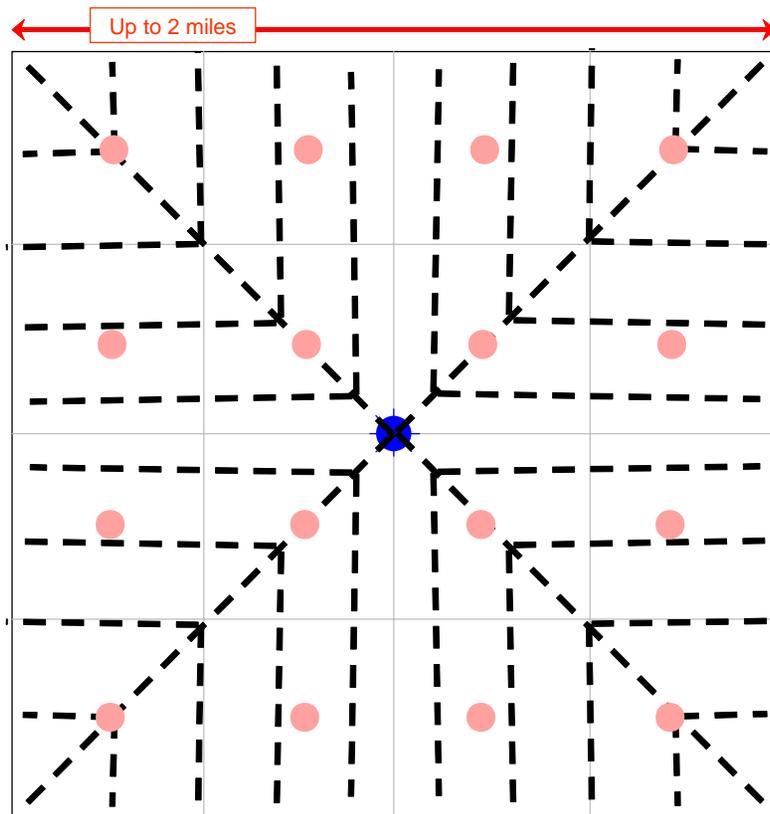
Coalbed Methane (CBM)

- Methane produced from coal seams and surrounding strata
- CBM production reduces methane emissions during mining
- Several types of CBM wells
- Abandonment issues
 - Plugging
 - Location



Plan View

Long Horizontal Holes



- Equivalent Vertical Holes
- Directional Hole System

Plan View

Directionally Drilled Branches

CBM Benefits

- **In-mine methane emissions reduced**
 - 40 to 90% of in-seam methane removed
 - Higher production rates
 - Reduced loads on bleeders
 - Reduced incidence of face ignitions
- **Supply of commercial gas**
- **Greenhouse gas emissions reduced**

PIB 05-10 Coalbed Methane Wells

(May 10, 2005)

- **CBM wells are functionally equivalent to methane degas holes**
- **MSHA will regulate CBM wells near active mines under ventilation plan and map requirements for degasification holes**
- **District manager approval is necessary before mining near or through CBM wells or installing a methane drainage system in an active mine**

Adverse Wells

- **Many properties have severed estates**
 - **Surface**
 - **Coal**
 - **By Seam**
 - **Oil & Gas**
 - **CBM**
- **Oil and gas wells have been drilled into active mines without notifying mine**
 - **Drillers may not know about mines and hazards**



**Mining Into
Pressurized
Holes**